UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: FEB 13 2006

SUBJECT: Removal Site Evaluation for the Diamond Head Oil Refinery Site, Kearny, Hudson County, New Jersey

FROM: Nick Magriples, On-Scene Coordinator N. Magriples
Removal Action Branch

TO: File

I. INTRODUCTION

The United States Environmental Protection Agency (EPA) is required to complete a Removal Site Evaluation (RSE) at all newly proposed and listed National Priority List (NPL) sites. The purpose of this RSE is to evaluate the Diamond Head Oil Refinery (Site) for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Removal Action consideration.

There has been a release of CERCLA-designated hazardous substances at the Site, which is a facility as defined under section 101(9) of CERCLA. Soils, sediment, surface water, and groundwater in and around the Site have been contaminated by past oil recycling operations at the Site. The Site, which is mostly fenced and is situated in an industrial area, is heavily overgrown with phragmites and other vegetation. A limited potential exists for direct exposure to hazardous substances at the Site. Ground water is not used for potable purposes in the vicinity of the Site. Based on the available information, a CERCLA removal action is not warranted at this time.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Physical location

The Site is located at 1401 Harrison Avenue, in Kearny, Hudson County, New Jersey (see Figure 1). Currently the Site is inactive and consists of approximately 15 acres of undeveloped land that is bordered by Harrison Avenue to the north, the entrance ramp to Interstate 280 to the east, a drainage channel bordering Interstate 280 to the south, and the Campbell Foundry to the west. A Public Service Electric and Gas (PSE&G) right-of-way runs the length of the Site near the western boundary. The area around the Site, situated just west of Exit 15W of the New Jersey Turnpike, is industrial. There are no residential areas in the vicinity of the Site. Harrison Avenue (aka Newark-Jersey City Turnpike) is used heavily by trucks and commercial vehicles.

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2. Site characteristics

The Site is a former oil-reprocessing facility that operated from 1946 to 1979. During facility operations, aboveground storage tanks and pits/lagoons were used to store oily wastes. These wastes were intermittently discharged directly to adjacent properties, including a wetland area to the south of the Site, creating an oil lake. Historical aerial photographs indicate that the oil lake may have been as large as seven acres in size. The New Jersey Department of Transportation acquired the property south of the Site in 1977, and as part of the I-280 construction, reportedly removed 9 million gallons of oil-contaminated water and over 5 million cubic yards of oily sludge from the lake. From the close of operations in 1979 until 1982, it was reported that the Site was used for the dumping of waste oils and other debris. During this time, a sample collected from the tanks revealed the presence of PCBs at 3,100 pm. In 1982 a contractor was hired to cleanup the Site and in the process removed 27 tons of contaminated soils. The Site was sold to a developer in 1985 and currently remains vacant.

Currently, all that remains at the Site is a former construction debris landfill, foundations of former tanks and buildings, and a paved access road from Harrison Avenue (see Figure 2). The landfill and oil lagoon are approximately seven and five acres in size, respectively. The Site is flat over the eastern section where the former reprocessing area and lagoon were located. The topography rises approximately 15 feet towards the west to where the landfill is located. The western portion of the Site is also relatively flat.

3. Site assessment activities/observations

A site reconnaissance was conducted by the Removal Action Branch on August 6, 2004. The Site was heavily vegetated along Harrison Avenue. A fence was present along Harrison Avenue except at the location of the utility easement along the western end of the Site. The fence circles around the Site along the entrance ramp onto Interstate 280, as does the heavy vegetation. Visibility onto the Site from Harrison Avenue and the entrance ramp is limited due to the heavy vegetation. The majority of the Site is covered by phragmites up to 15 feet tall.

Previously in November 1997, a site visit was conducted with representatives from the Remedial Program to evaluate the conditions at the Site. The remnants of the lagoons were evident at that time. The drainage channel bordering Interstate 280 to the south was accessible from the Site. It was reported at the time that a vagrant had been using the Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Sampling conducted during the Site Inspection in 1991, the Expanded Site Inspection in 1999, and the subsequent Remedial Investigation (RI) has revealed elevated levels of volatile organics, semi-volatile organics, pesticides/PCBs, and heavy metals in the soils and sediments at the Site. Table 1 lists some of the compounds and analytes that have been identified at the Site during the RI and provides a representation of some of the most elevated concentrations detected.

Table 1: Summary of Analytical Results from Soil and Sediment Samples Collected at the Diamond Head Oil Refinery, Kearny, New Jersey

Compound/Analyte	Surface Soil Concentration (mg/kg)	Subsurface Soil Concentration (mg/kg)	Sediment Concentration (mg/kg)	NJDEP NRDCSCC * (mg/kg)
benzene	2.0	14	36	13
1,2-dichlorobenzene	18	35	55	10,000
ethyl benzene	35	78	220	1,000
methylisobutyl ketone	3.9	150	16	1,000
trichloroethylene	3.0	83	180	54
tetrachloroethylene	25	19	36	6
toluene	26	76	480	1,000
xylenes, total	190	490	990	1,000
benzo(a)anthracene	9.7	46	6.8	4
benzo(a)pyrene	10	35	8.5	.66
benzo(b)fluoranthene	7.8	40	7.3	4
benzo(k)fluoranthene	9.7	25	5.9	4
chrysene	11	44	10	40
indeno(1,2,3-cd)pyrene	8.8	19	7.6	4
PCBs, total	1,800	11.1	24	2
arsenic	226	188	37.7	20
copper	2,270	19,600	630	600
lead	27,900	13,200	84,400	600
nickel	1,560	2,980	136	2,400
thallium	8.8	15.9	7.2	2
zinc	3,100	63,700	17,700	1,500

* NonResidential Direct Contact Soil Cleanup Criteria

Some of the constituents identified in samples collected from a light non-aqueous phase liquid (LNAPL) present in the ground water include: benzene (2.9 mg/kg), toluene (12 mg/kg), ethylbenzene (46 mg/kg), xylene (167 mg/kg), naphthalene (150 mg/kg), benzo(a)anthracene (21 mg/kg), benzo(a)pyrene (17 mg/kg), benzo(b)fluoranthene (24 mg/kg),

chrysene (26 mg/kg), and PCB Aroclor-1260 (8.9 mg/kg). The LNAPL, which is five feet thick in some of the monitoring wells and is conservatively estimated to cover 80,000 square feet of the Site and as much as 5,000 cubic yards of the vadose zone, was also found to be RCRA-characteristic ignitable.

There are several ground water plumes beneath the Site. It is reported that the larger of the two volatile organic compound plumes covers an estimated 750,000 square feet in area and extends nearly 500 feet offsite, mainly into the cloverleaf for the I-280 ramp. The larger of the two semi-volatile organic compound plumes reportedly covers an estimated 990,000 square feet in area.

All of the materials listed above are CERCLA designated Hazardous Substances, as listed in 40 CFR Table 302.4. The analytical data presented above is a summary of the most significant data available from the aforementioned reports. It is not meant to be inclusive of all of the analytes or compounds detected at the Site.

The mechanism for past releases to the environment was the business operations and waste disposal practices at the Site. Oily wastes were stored in lagoons and underground pits, and intermittently discharged to adjacent properties and wetland areas. Currently, the Site is inactive and a buried oil lagoon and large subsurface pool of contaminated petroleum product remains at the Site. The contaminated soil and sediment remain unmitigated, and the ground water has been impacted. Future releases to the surface water and the ground water will continue unabated until a remedial action is undertaken.

5. NPL status

The Site was listed final on the NPL in September 2002.

B. Other Actions to Date

1. Previous actions

There have been no previous Federal actions taken at the Site.

2. Current actions

Currently, EPA is conducting a Remedial Investigation at the Site.

C. State and Local Authorities' Role

1. State and local actions to date

There have been no State or local actions taken at the Site.

2. Potential for continued State/local response

At this time it is not known whether there will be any future State or local actions taken at the Site.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Elevated levels of a wide variety of CERCLA hazardous substances are present at the Site that pose a potential human health threat. Although there is a potential for direct contact, it is not likely that the public will come into contact with the most contaminated areas on the Site. Most of the Site is fenced and heavily vegetated, which minimizes the potential for trespassers to access these areas. Most of the areas with the highest levels of contamination are in the southern and eastern portions of the Site, which are generally saturated. This further limits direct contact during wet weather periods and the generation of dust during periods where the ground is normally saturated.

B. Threats to the Environment

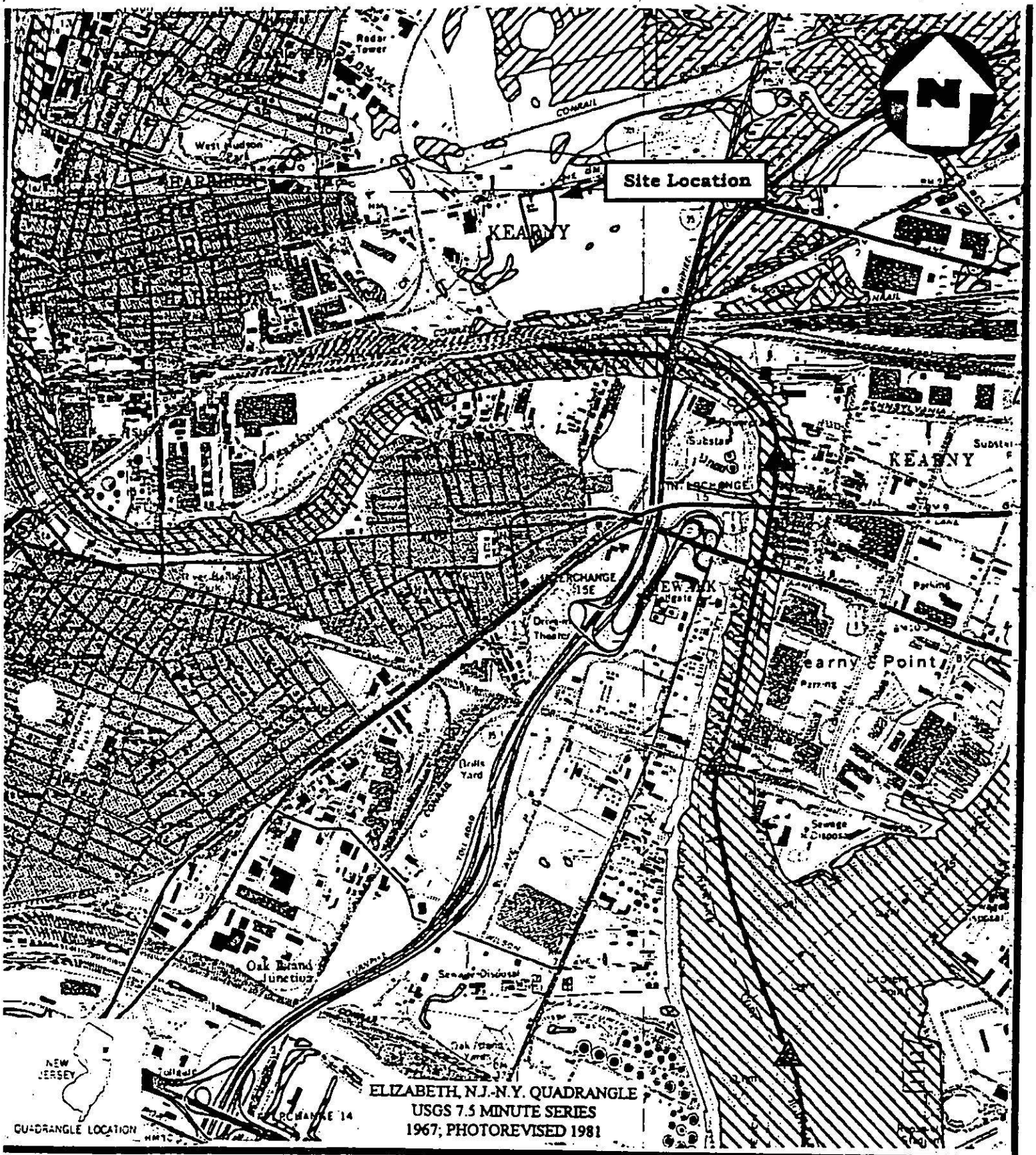
There is a potential risk to plants and animals from direct exposure to the CERCLA hazardous substance present at the Site. The potential habitats that exist at the Site are highly disturbed by past activities and the industrial nature of the area around the Site. It appears that there is limited viable habitat for sensitive ecological receptors.

IV. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

This section is not applicable at this time.

V. ENFORCEMENT

No enforcement activities have been undertaken as part of this RSE.



WESTON MANAGERS DESIGNERS/CONSULTANTS Roy F. Weston, Inc. FEDERAL PROGRAMS DIVISION	EPA TM D. MUNHALL	FIGURE 1 SITE LOCATION MAP
IN SOCIATION WITH RESOURCE APPLICATION, INC., C.C. JOHNSON & MALHOTRA, P.C., R.E. SARRIERA ASSOCIATES, TETRATECH INC., AND GRB ENVIRONMENTAL SERVICES, INC.	START PM D. FOERTER	DIAMOND HEAD OIL REFINERY DIV. KEARNY, NJ

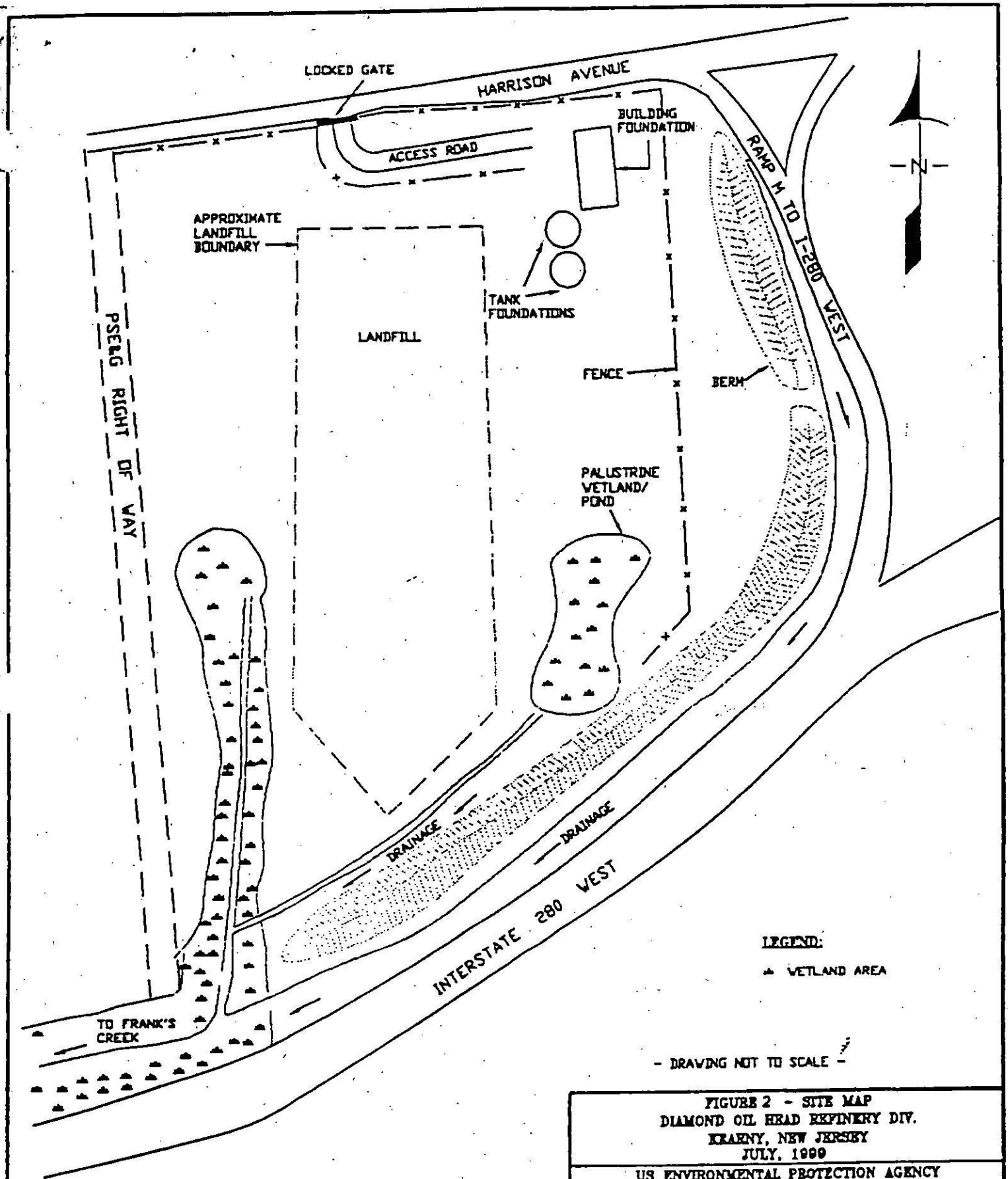


FIGURE 2 - SITE MAP
DIAMOND OIL HEAD REFINERY DIV.
KEARNY, NEW JERSEY
JULY, 1990

US ENVIRONMENTAL PROTECTION AGENCY
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
CONTRACT# 68-W8-0018

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